

AMENDMENTS TO THE CLAIMS

The following Listing of Claims replaces all prior versions and listings of claims in this application.

Listing of Claims:

1. (Currently Amended) Method of combustion for tubular propellant charges with a very high charge density and high progressivity for barrel weapons, the method comprising:

radially perforating at least two propellant tubes which have circular outer and inner boundary surfaces in their entirety with combustion or ignition channels at an e-dimension distance selected in relation to the actual type of propellant and the desired combustion characteristics of said propellant tubes,

treating at least one of the total number of outer surfaces of these propellant tubes that are available for initiation with an inhibition, surface treatment or surface coating , ~~and~~

delaying the propagation of ignition of said all outer surfaces of at least one propellant tube, so that ignition of the propellant tubes is successively done one after the other and combustion of a propellant tube is partially mutually overlapping the combustion of the next propellant tube such that the maximum pressure within the barrel weapon resulting from each combustion is equal to or slightly below a maximum operational pressure of the barrel weapon, and

selecting a first propellant tube from among the at least two propellant tubes with a different e-dimension distance in relation to the e-dimension distance of a second propellant tube from among the at least two propellant tubes.

2. (Previously Presented) Method in accordance with Claim 1, further comprising:

arranging at least two of the perforated propellant tubes of the charge one after the other.

3. (Previously Presented) Method in accordance with Claim 1, further comprising:

arranging at least one of the propellant tubes of the charge inside the internal cavity of an outer propellant tube.

4. (Previously Presented) Method in accordance with Claim 1, further comprising:

treating each propellant tube to be entirely ignited by propagation, after another propellant tube has previously been ignited by propagation, with an inhibition, surface treatment or surface coating with a substance intended to delay the propagation of ignition along its respective outer boundary surfaces, so that the desired delay in the propagation of ignition is achieved.

5. (Previously Presented) Method in accordance with Claim 1, characterized in that the inhibition, surface treatment or surface coating of each propellant tube to be ignited by propagation, after another propellant tube has previously been ignited by propagation, is executed in such a way that only limited declines in the jointly increasingly generation of propellant gas by the entire charge occur during the total combustion of the latter.

6. (Previously Presented) Method in accordance with Claim 1 for the production of so-called modular charges consisting of propellant unit charges encapsulated in a combustible housing or means of protection against the weather, climate and/or wear and tear, which charges are executed in such a way that they are capable of being combined in an optional number to form charges with the desired energy content, where each such part charge exhibits a central ignition channel to facilitate the propagation of ignition between all part charges combined together to form a unit, characterized in that combined within each modular charge are at least two highly perforated propellant tubes, of which each outer propellant tube is inhibited, surface-treated or coated with a substance having a different rate of combustion along its outer surfaces such that the propellant tubes are caused to ignite by propagation in a predetermined and mutually partially overlapping ignition sequence.

7. (Withdrawn) Propellant charge for barrel weapons having a circular outer cross section and a very high charge density and high progressivity produced in accordance with the method in accordance with Claim 1, characterized in that it comprises two or more radially

highly perforated propellant tubes arranged concentrically inside one another and/or directly after one another and with circular outer and inner cross sections, where each outer propellant tube has an inner cavity with a cross-sectional form adapted to the outer diameter of an inner propellant tube that may be arranged therein, and where each propellant tube in its entirety is perforated with combustion or ignition channels arranged radially in the cross section of the propellant tubes, which channels are separated from one another at distances or e-dimensions adapted for the respective propellant tube in relation to the desired combustion times and the type of propellant contained therein.

8. (Withdrawn) Propellant charge in accordance with Claim 7, characterized in that the propellant tubes have been given a previously determined and mutually partially overlapping ignition sequence by inhibition, surface treatment or surface coating with a substance having a lower rate of combustion than the propellant tube itself at the time of initiation of the charge.

9. (Withdrawn) Propellant charge in accordance with Claim 8, characterized in that said propellant charge comprises layers of a propellant for delaying the propagation of ignition arranged between the different propellant tubes.

10. (Withdrawn) Propellant charge in accordance with Claim 7, characterized in that said propellant charge has been shaped externally as a modular charge.

11. (Withdrawn) Propellant charge in accordance with Claim 7, characterized in that the different propellant tubes are produced from different propellants with different rates of combustion and perforated at different e-dimension distances.

12. (Withdrawn) Propellant charge in accordance with Claim 7, characterized in that, for a plurality of propellant tubes arranged inside one another, a propellant tube previously ignited by propagation has, by means of a selected e-dimension and/or a selected type of propellant, been given a longer combustion time than a propellant tube subsequently ignited by propagation.

13. (Withdrawn) Propellant charge in accordance with Claim 7, characterized in that the inner cavity of the innermost propellant tube of the charge has been adapted to accommodate a fuse for the initiation of the charge, which fuse can be combined with an ignition propagation charge consisting of loose granular propellant.

14. (Previously Presented) Method in accordance with Claim 2, further comprising:

treating each propellant tube to be entirely ignited by propagation, after another propellant tube has previously been ignited by propagation, with an inhibition, surface treatment or surface coating with a substance intended to delay the propagation of ignition along its respective outer boundary surfaces, so that the desired delay in the propagation of ignition is achieved.

15. (Previously Presented) Method in accordance with Claim 3, further comprising:

treating each propellant tube to be entirely ignited by propagation, after another propellant tube has previously been ignited by propagation, with an inhibition, surface treatment or surface coating with a substance intended to delay the propagation of ignition along its respective outer boundary surfaces, so that the desired delay in the propagation of ignition is achieved.

16. (Previously Presented) Method in accordance with Claim 2, characterized in that the inhibition, surface treatment or surface coating of each propellant tube to be ignited by propagation, after another propellant tube has previously been ignited by propagation, is executed in such a way that only limited declines in the jointly increasingly generation of propellant gas by the entire charge occur during the total combustion of the latter.

17. (Previously Presented) Method in accordance with Claim 3, characterized in that the inhibition, surface treatment or surface coating of each propellant tube to be ignited by propagation, after another propellant tube has previously been ignited by propagation, is executed in such a way that only limited declines in the jointly increasingly generation of propellant gas by the entire charge occur during the total combustion of the latter.

18. (Previously Presented) Method in accordance with Claim 4, characterized in that the inhibition, surface treatment or surface coating of each propellant tube to be ignited by propagation, after another propellant tube has previously been ignited by propagation, is executed in such a way that only limited declines in the jointly increasingly generation of propellant gas by the entire charge occur during the total combustion of the latter.

19. (Previously Presented) Method in accordance with Claim 2 for the production of so-called modular charges consisting of propellant unit charges encapsulated in a combustible housing or means of protection against the weather, climate and/or wear and tear, which charges are executed in such a way that they are capable of being combined in an optional number to form charges with the desired energy content, where each such part charge exhibits a central ignition channel to facilitate the propagation of ignition between all part charges combined together to form a unit, characterized in that combined within each modular charge are at least two highly perforated propellant tubes, of which each outer propellant tube is inhibited, surface-treated or coated with a substance having a different rate of combustion along its outer surfaces such that the propellant tubes are caused to ignite by propagation in a predetermined and mutually partially overlapping ignition sequence.

20. (Previously Presented) Method in accordance with Claim 3 for the production of so-called modular charges consisting of propellant unit charges encapsulated in a combustible housing or means of protection against the weather, climate and/or wear and tear, which charges are executed in such a way that they are capable of being combined in an optional number to form charges with the desired energy content, where each such part charge exhibits a central ignition channel to facilitate the propagation of ignition between all part charges combined together to form a unit, characterized in that combined within each modular charge are at least two highly perforated propellant tubes, of which each outer propellant tube is inhibited, surface-treated or coated with a substance having a different rate of combustion along its outer surfaces such that the propellant tubes are caused to ignite by propagation in a predetermined and mutually partially overlapping ignition sequence.

21. (Previously Presented) Method in accordance with Claim 1, wherein the generation of propellant gas has essentially ceased entirely immediately before a projectile leaves a muzzle of the barrel weapon.

22. (Previously Presented) Method in accordance with Claim 1, further comprising:
replacing a loose granular perforated propellant with the at least two propellant charges.